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TO THE KNOWLEDGE OF DUNG FLIES (DIPTERA, SCATHOPHAGIDAE) OF VIETNAM, WITH THE DESCRIPTION OF A NEW SPECIES

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Five species in three genera of Scathophagidae are firstly recorded from Vietnam. One species, *Scatomyza fansipanicola* Ozerov, **sp. n.**, is described. *Scatomyza* Fallén, 1810 is considered as a valid genus. Diagnoses and keys to all recorded from Vietnam taxa are given.

KEY WORDS: Diptera, Scathophagidae, new species, fauna, Vietnam.

А. Л. Озеров[1], М. Г. Кривошеина[2]. К изучению скатофагид (Diptera, Scathophagidae) Вьетнама, с описанием нового вида // Дальневосточный энтомолог. 2011. N 228. С. 1-10.

Пять видов из трех родов семейства Scathophagidae впервые приводятся для Вьетнама. Описан один новый для науки вид – *Scatomyza fansipanicola* Ozerov, **sp. n.** Род *Scatomyza* Fallén, 1810 восстановлен из синонимов. Приведены определительные таблицы или даны диагнозы для всех отмеченных из Вьетнама таксонов.

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INTRODUCTION

Scathophagidae is a family distributed mainly in the Northern Hemisphere. Oriental fauna includes 10 genera and 13 described and undescribed species (Vockeroth, 1977; Ozerov, 2009; Šifner, 2010). Most of the species in the Oriental region are known from high altitudes. No species were known from Vietnam.

A recent collecting trip to Vietnam yielded five scathophagid species; one of them is new to science. All species were collected from 28 March to 7 April 2011 in Northern Vietnam (Sa Pa Valley) and in mountains in Hoang Lien National Park.

All specimens, including types, are kept in the Zoological Museum, Moscow State University (ZMUM).

TAXONOMY

Key to genera of Scathophagidae of Vietnam

1. Gena narrow, its width less than width of postpedicel. 2 *or*. Proepisternum bare, without hairs. Taster with long seta at apex. Anepisternum covered with hairs usually along dorsal margin and in posterior part only, without hairs posterior to anterior thoracic spiracle. Scutellum with 1 pair of strong setae ………..……… ………………………………………………………… ***Parallelomma*** Becker

– Width of gena more than width of postpedicel. 3 *or*. Proepisternum with hairs. Taster without long seta at apex. Anepisternum covered with hairs completely or almost completely, with hairs adjacent to anterior thoracic spiracle. Scutellum with 2-3 pairs of strong setae ……………………….………………………. 2

2. Postmetacoxal (= postcoxal, metepimeral) bridge present (Fig. 2). Anepimeron bare ………………………………..………………………. ***Scatomyza*** Fallén

– Postmetacoxal (= postcoxal, metepimeral) bridge absent (Fig. 1). Anepimeron with hairs ……………………………………...…………. ***Scathophaga*** Meigen

Parallelomma Strobl, 1894

Parallelomma Strobl, 1894: 78 (as subgenus of *Cleigastra* [as *Clidogastra*] Macquart, 1835). Type-species: *Cordylura vittata* Meigen, 1826, by monotypy. Gender: neuter.

Chylizosoma Hendel, 1924: 83. Type-species: *Parallelomma medium* Becker, 1894, by original designation. Gender: neuter.

DIAGNOSIS. Gena narrow, its width approximately 1/2 width of postpedicel. 2 *or*. Proepisternum covered with hair-like setulae at middle or in anterior part. Anepisternum covered with setulae usually along dorsal margin and in posterior part only, without setulae posterior to anterior spiracle. Scutellum with one pair (discal) of strong setae.

NOTES. Two species are known from Oriental region: *Parallelomma vittatum* (Meigen, 1826) (Vockeroth, 1977; as *P. paridis* Hering, 1923) and *Parallelomma merzi* Ozerov, 2009 (Ozerov, 2009). Larva of *P. vittatum* is a leaf-miner in Orchidaceae and Liliaceae (Jong, 2000).

***Parallelomma merzi* Ozerov, 2009**

Parallelomma merzi Ozerov, 2009: 425.

MATERIAL EXAMINED. 2 ♂, VIETNAM: Lào Cai Province, Sa Pa, 1525 m (22.341421ºN, 103.851068ºE), by sweeping near stream, 30.III 2011 (coll. A. Ozerov & A. Medvedev).

NOTES. This species was described from Northern Thailand. The wing, male sternite 5 and male genitalia were well-illustrated by Ozerov (2009).

DISTRIBUTION. Thailand (north), Vietnam (north).

Scathophaga Meigen, 1803

Scathophaga Meigen, 1803: 277. Type-species: *Musca merdaria* Fabricius, 1794, by monotypy [=*Musca stercoraria* (Linnaeus)]. Gender: feminine.

DIAGNOSIS. Proepisternum is covered with hairs at middle or in anterior part. Anepisternum is covered with hairs completely or almost completely, with hairs posterior to anterior spiracle. Postmetacoxal (= postcoxal, metepimeral) bridge absent (Fig. 1). Scutellum with 2-3 pairs of strong setae.

NOTES. More than 50 species are known in the World, but only one species, *S. stercoraria*, is known from the Oriental region (Vockeroth, 1977). Species of this genus are egg-laying. Larvae of *Scathophaga* species are carnivorous in dung and in rotten seaweed on the coast.

***Scathophaga stercoraria* (Linnaeus, 1758)**
Fig. 1

Musca stercoraria Linnaeus, 1758: 599.

MATERIAL EXAMINED. 1 ♀, Vietnam: Lào Cai Province, Sa Pa, 1525 m (22.341421ºN, 103.851068ºE), near dog's excrements, 4.IV 2011 (coll. A. Ozerov).

NOTES. Very good figures of male sternite 5 and male genitalia for this species were given by Ozerov (2010). Adults are common on dung of various origin. Larvae are carnivorous in these substrates.

DISTRIBUTION. This species is widespread in Holarctic. It is known in the Oriental region from China, India, and Nepal (Vockeroth, 1977).

Scatomyza Fallén, 1810, stat. resurr.

Scatomyza Fallén, 1810: 15. Type-species: *Musca scybalaria* Linnaeus, 1758, by subsequent designation of Lucas *in* d'Orbigny, 1848: 411. Gender: feminine.

DIAGNOSIS. Proepisternum is covered with hairs at middle or in anterior part. Anepisternum is covered with hairs completely or almost completely, with hairs posterior to anterior spiracle. Postmetacoxal (= postcoxal, metepimeral) bridge present (Fig. 2). Scutellum with 2-3 pairs of strong setae.

NOTES. *Scatomyza* Fallén was considered to be the synonym of *Scathophaga* Meigen almost by all recent authors (Vockeroth, 1977; Gorodkov, 1986; Šifner, 2008). However, type-species of *Scatomyza, Musca scybalaria* Linnaeus, 1758, as well as the other species: *S. calceata* (Ozerov, 2009), *S. mellipes* (Coquillett, 1899), *S. amplipennis* (Portschinsky, 1887), *S. magnipennis* (Portschinsky, 1887), and *S. reses* (Giblio-Tos, 1893) (see: Vockeroth, 2010), easily differ from *Scathophaga* species by the presence of postmetacoxal bridge (Fig. 2). Moreover, the females of *Scatomyza* are larviparous (A. Ozerov – personal observations for *S. mellipes*, *S. fansipanicola* and *S. scybalaria*), while *Scathophaga* females are egg-laying.

For our sorrow none of the species referred to *Scatomyza* by us was studied by Bernasconi et al. (2010) based on mitochondrial (COI, 12S, and 16S), nuclear (ITS2) as well as microsatellite markers and later by Kutty et al. (2007). We hope that future investigations will prove our decision to restore this genus.



Figs 1–2. Postmetacoxal area: 1) *Scathophaga stercoraria* (Linnaeus), postmetacoxal bridge absent; 2) *Scatomyza scybalaria* (Linnaeus), postmetacoxal bridge present.

Key to species of *Scatomyza* of Vietnam

1. Scutellum with apical scutellar setulae (Fig. 5). Abdomen with strong setae. Male hindfemur with row of *ad* setae. Male sternites 4 and 5, epandrium, cerci and surstyli as in Figs. 3, 4, 6, 7 …………………….....……. ***S. fansipanicola* sp. n.**

– Scutellum with strong apical scutellar setae (Fig. 9). Abdomen without strong setae, with hairs only. Male hindfemur without *ad* …………….…………..… 2

2. Postpedicel and all legs completely yellow. Male sternite 5, epandrium, cerci and surstyli as in Figs. 12–15 ……………….……...........…. ***S. scybalaria*** (Linnaeus)

– Postpedicel black. All femora blackish. Male sternite 5, epandrium, cerci and surstyli as in Figs. 9, 10, 11 …………....……….…...……. ***S. mellipes*** (Coquillett)

***Scatomyza fansipanicola* Ozerov, sp. n.**

Figs 3–7

MATERIAL. Holotype – ♂, Vietnam: Lào Cai Province, road to Mt. Fansipan, 2055 m, (22.335885ºN, 103.784281ºE), 31.III.2011 (coll. A. Ozerov & A. Medvedev). Holotype is pinned, in excellent condition. Paratypes: 36 ♂, with same label as holotype; 1♂, Lào Cai Province, near Silver waterfall, (22.354917ºN, 103.774126ºE), 1900 m, 02.IV 2011 (coll. A. Ozerov & A. Medvedev); 7♂, Lai Chau Province, road to Mt. Fansipan, 2095 m, (22.335885ºN, 103.784281ºE), 4.IV 2011 (coll. A. Medvedev); 5♂, Lai Chau Province, Hoang Lien National Park, (22.348542ºN, 103.770024ºE), 1806 m, 5.IV 2011 (coll. A. Ozerov & A. Medvedev); 7♂, 4♀, Lai Chau Province, Hoang Lien National Park, (22.348542ºN, 103.770024ºE), 1806 m, 7.IV 2011 (coll. A. Ozerov).

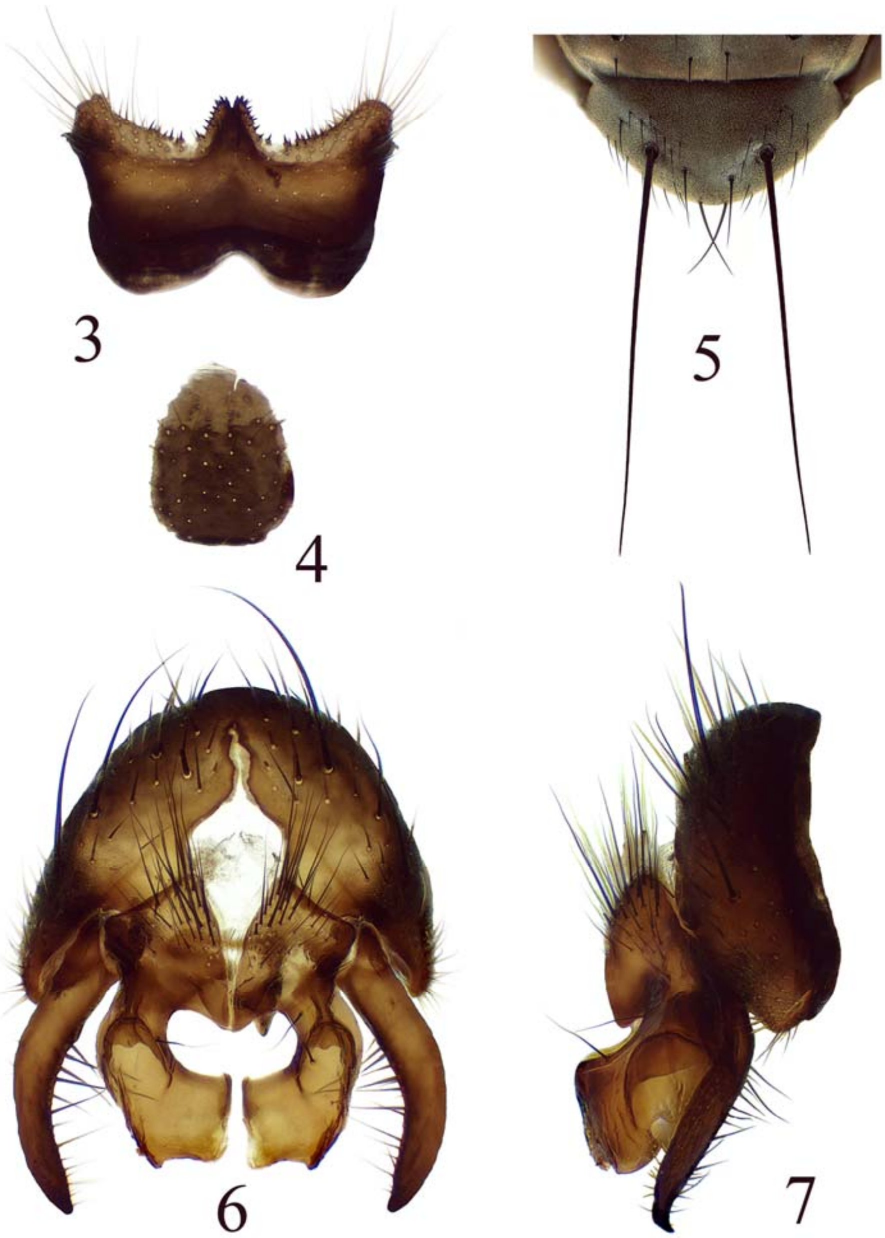
DESCRIPTION. MALE, FEMALE. Head. Frons reddish-yellow, with golden microtrichia along eye margin. Ocellar triangle blackish, with golden microtrichia. Face, parafacial and gena yellow, with whitish reflection. Postcranium blackish, greyish microtrichose. Gena ventral to eye higher than width of postpedicel, with 1 strong seta near posterior margin. 3 orbitals, 4-5 frontals, 1 ocellar, 1 postocellar, 1 inner vertical, 1 outer vertical setae present; 2 pairs of strong vibrissae and 2 pairs of short subvibrissae. Scapus and pedicel reddish, postpedicel blackish. Postpedicel rounded apically, approximately 2.5 times as long as wide. Arista with moderate dorsal and ventral rays in basal half. Palpus yellow. Clypeus and proboscis black.

Thorax black, densely miscrotrichose, with dark stripes and fuzzy spots on scutum, anepisternum and scutellum. Scutum with 2 postpronotal, 2 notopleural, 1+2 supra-alar, (0–1)+2 intra-alar, 2 postalar, and 2+3 dorsocentral setae; acrostichal hairs in two rows, but absent in central part of scutum, prescutellar pair equal to, or slightly longer than other *ac* hairs. Proepisternum, proepimeron, anepisternum, katepisternum with hairs. Anepisternum with 2-3 setae near posterior margin; katepisternum with 1 seta in posterodorsal corner. Anepimeron bare. Metepimeral (=postcoxal) bridge present. Scutellum with pairs of strong discal setae, with pair of apical setulae and with hairs laterally (Fig. 5).

Legs greyish microtrichose. Coxae of all legs black; trochanters of all legs yellow; forefemur yellow, but blackish dorsally, posteriorly and usually ventrally, mid and hind femora yellow, but often blackish dorsally; all tibiae and tarsi yellow, only tarsomeres 4 and 5 blackish dorsally. Forefemur with 4-5 *pd*. Foretibia with 4 *d* (including apical seta) and with 2 strong *p* (including apical seta). Midfemur with row of *a* or *ad* and with preapical *p* and *pd*. Midtibia with 2 *ad*, 2 *pd*, 1 *p*, and ring of strong apical setae. Hindfemur with row of *ad*, 1-2 *av* in apical quarter and with preapical *pd*. Hindtibia with 4 long *ad* (including apical seta), 3-4 long *pd* (including apical seta) and apical *av* setae.

Wing tinged with brownish. Veins blackish, crossveins not darkened. Calypters, including margins, and halteres darkened.

Abdomen black, densely microtrichose, with rows of setae on tergites 2–7 along posterior margin. Male sternites 4 and 5 as in Figs 3, 4. Epandrium, cerci and surstyli as in Figs 6, 7.



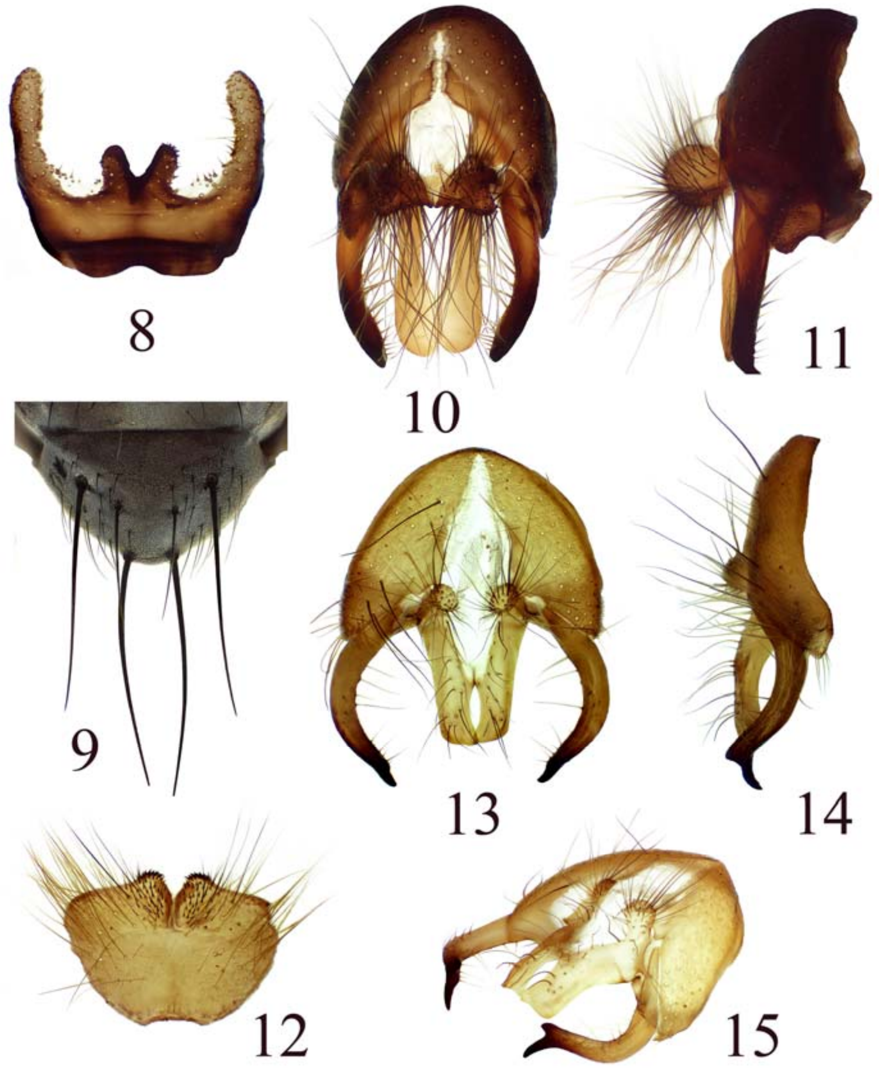
Figs 3–7. *Scatomyza fansipanicola* Ozerov, sp. n., paratype, male: 3) sternite 5; 4) sternite 4; 5) scutellum; 6) epandrium, cerci and surstyli, dorsal view; 7) epandrium, cercus and surstylus, lateral view.

MEASUREMENTS. Length of body 5.2-6.4 mm. Length of wing 5.5-6.7 mm.

DISTRIBUTION. Vietnam (north).

COMPARISON. See above key to Vietnam species of *Scatomyza*.

ETYMOLOGY. The name signifies "living on Fansipan". Mt. Fansipan (3142 m) forms a part of the Hoang Lien Mountains and is the highest peak in Vietnam and the entire Indochina peninsula.



Figs 8–15. *Scatomyza mellipes* (Coquillett) (8–11) and *S. scybalaria* (Linnaeus) (12–15), male: 8, 12) sternite 5; 9) scutellum; 10, 13) epandrium, cerci and surstyli, dorsal view; 11, 14) epandrium, cercus and surstylus, lateral view; 15) epandrium, cerci and surstyli, dorsolateral view.

***Scatomyza mellipes* (Coquillett, 1899), comb. n.**
Figs 8–11

Scatophaga mellipes Coquillett, 1899: 335.
Scatophaga chinensis Malloch, 1935: 260.
Scathophaga eoa Ozerov, 2007: 2.

MATERIAL EXAMINED. 1♂, Vietnam: Lào Cai Province, Sa Pa, (22.3414ºN, 103.85107ºE), 1525 m, 30.III 2011 (coll. A. Ozerov & A. Medvedev); 3♂, 1♀, Lai Chau Province, Hoang Lien National Park, (22.348191ºN, 103.769786ºE), 1849 m,
2.IV 2011 (coll. A. Ozerov & A. Medvedev); 2 ♂, Lai Chau Province, road to Mt. Fansipan, 2095 m, (22.335885ºN, 103.784281ºE), 4.IV 2011 (coll. A. Medvedev); 1 ♂, 1 ♀, Lào Cai Province, Sa Pa, (22.341421ºN, 103.851068ºE), 1525 m, 4.IV 2011 (coll. A. Ozerov); 2 ♂, 3 ♀, Lai Chau Province, Hoang Lien National Park, 1806 m, (22.348542ºN, 103.770024ºE), 5 and 7.IV 2011 (coll. A. Ozerov & A. Medvedev).

NOTES. This species were taken mainly on human faces and on faces of water buffalo, too.

DISTRIBUTION. China, India, Japan, Korea, Nepal, Russia (south of Far East), Vietnam (north).

***Scatomyza scybalaria* (Linnaeus, 1758)**
Figs 2, 12–15

Musca scybalaria Linnaeus, 1758: 599.

MATERIAL EXAMINED. 1 ♂, Vietnam: Lào Cai Province, Sa Pa, (22.331ºN, 103.820250ºE), 1268 m, 28.III 2011 (coll. A. Ozerov & A. Medvedev); 11 ♂, 1 ♀, Lào Cai Province, Sa Pa, (22.330395ºN, 103.825418ºE), 1284 m, on faces of water buffalo (*Bubalus bubalis*), 3.IV 2011 (coll. A. Ozerov & A. Medvedev); 1 ♀, Lai Chau Province, road to Mt. Fansipan, (22.335885ºN, 103.784281ºE), 2095 m, 4.IV 2011 (coll. A. Medvedev); 1♂, 1♀, Lai Chau Province, Hoang Lien National Park, (22.348542ºN, 103.770024ºE), 1806 m, 7.IV 2011 (coll. A. Ozerov).

NOTES. This species is common on faces of water buffalo in Sa Pa Valley, but is rare in mountains above 1900 m. Very good figures of male sternite 5 and male genitalia were given by Suh et al. (2007).

DISTRIBUTION. Transpalaearctic species. Recorded from Oriental Region for the first time.

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